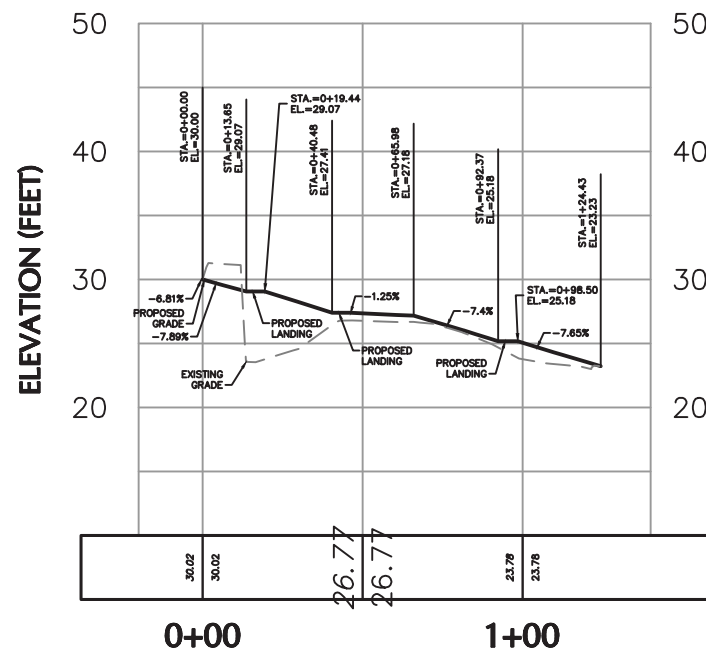


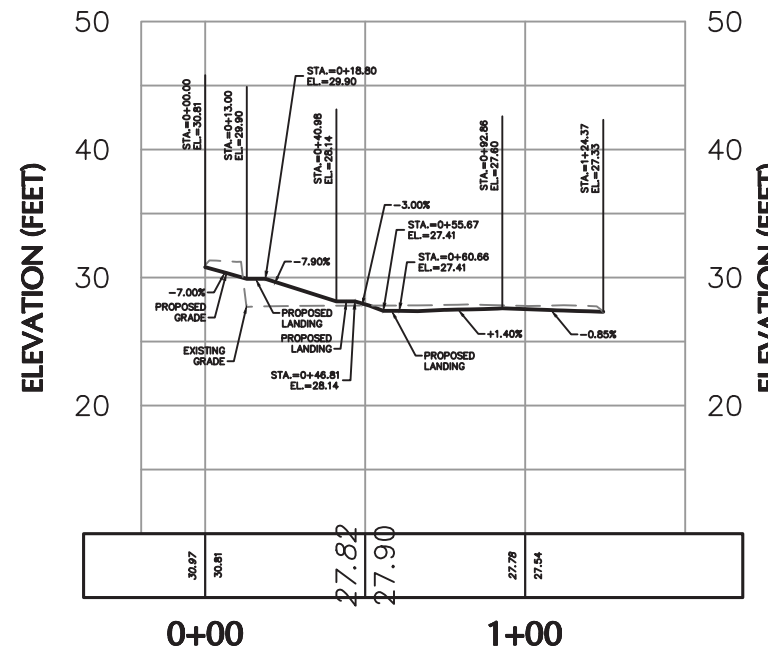
GRADING NOTES:

1. SEE CS002 FOR ADDITIONAL NOTES.
2. ALL GRADING, DRAINAGE, AND UTILITY INSTALLATION AND/OR CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS OR LOCAL REQUIREMENTS. SHOULD A DIFFERENCE IN REQUIREMENTS OCCUR, THE STRICTER OF THE TWO REGULATIONS WILL APPLY.
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7. ALL GRADING IS TO PROMOTE POSITIVE DRAINAGE AWAY FROM THE BUILDING.
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9. TOP OF WALL ELEVATIONS ARE APPROXIMATE. SEE STRUCTURAL DRAWINGS FOR DETAIL.

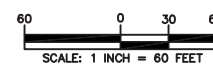
GRADING PLAN LEGEND



GRADING PROFILE:

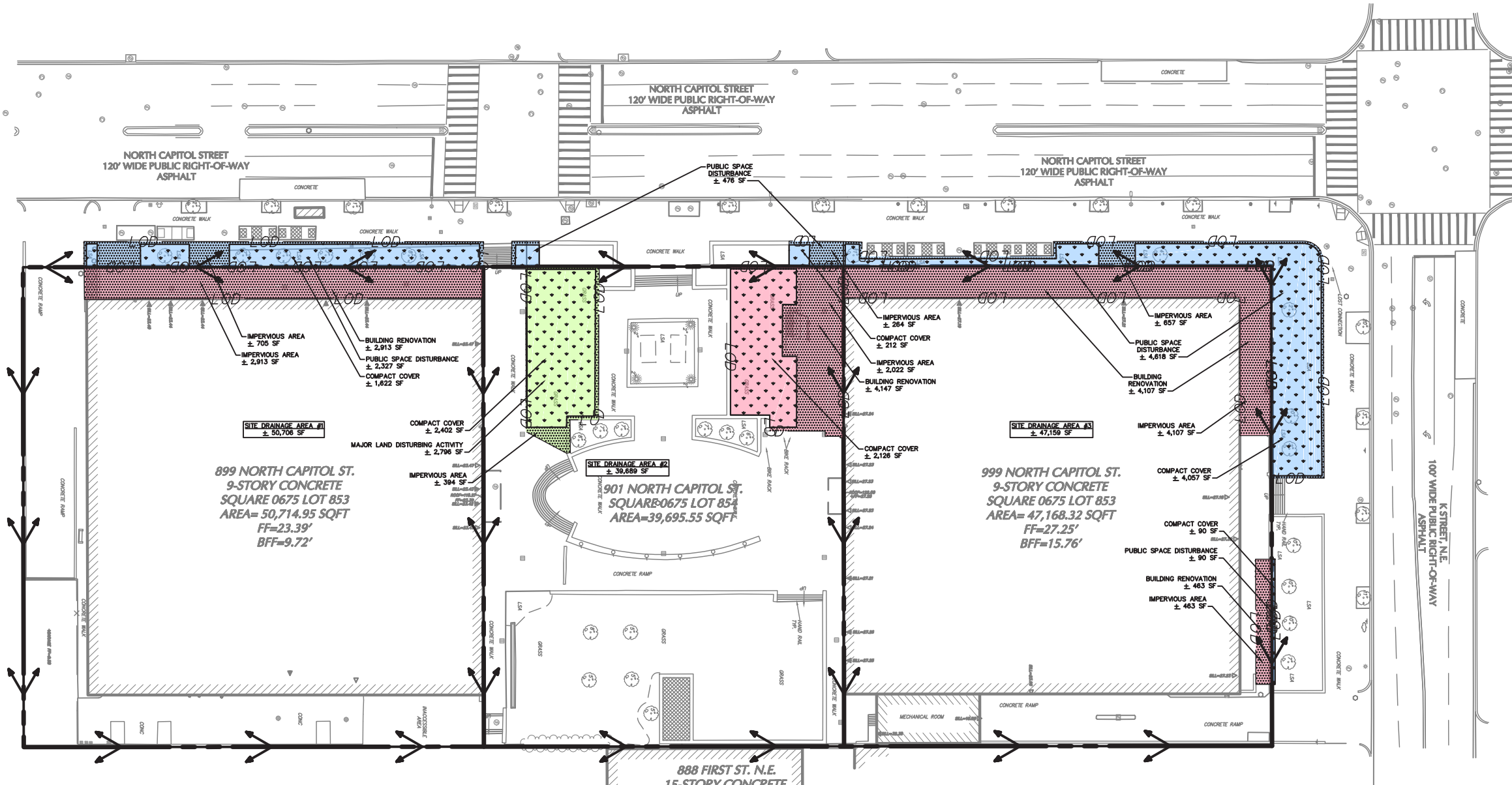


GRADING PROFILE:
RAMP 999



899 and 999 North Capitol Street, NE
 PHASE 1
 August 24th, 2021

LANGAN Langan Engineering and Environmental Services, Inc. 1300 Wilson Boulevard, Suite 450 Arlington, VA 22209 T: 571.366.6800 F: 571.366.6801 www.langan.com	Project	Drawing Title	Project No.	Drawing No.
	UNION SQUARE	GRADING PLAN	270098601	CG101
			Date	
			12 AUG 2021	
		Checked By	AAO	



PRE-CONSTRUCTION LAND COVER NOTES:

1. SEE CS002 FOR ADDITIONAL NOTES.
2. ALL GRADING, DRAINAGE, AND UTILITY INSTALLATION AND/OR CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS OR LOCAL REQUIREMENTS. SHOULD A DIFFERENCE IN REQUIREMENTS OCCUR, THE STRICTER OF THE TWO REGULATIONS WILL APPLY.
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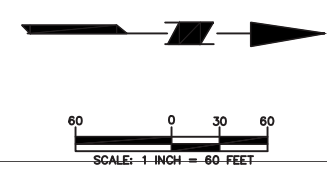
PRE-CONSTRUCTION LAND COVER LEGEND

- LIMITS OF DISTURBANCE — LOD —
- DRAINAGE AREA DIVIDE —
- BUILDING RENOVATION [Pink hatched pattern]
- MAJOR LAND DISTURBING ACTIVITY [Green hatched pattern]
- PUBLIC SPACE DISTURBANCE [Blue hatched pattern]
- COMPACT COVER [Downward arrows pattern]
- IMPERVIOUS AREA [Dotted pattern]
- BMP - BIORETENTION AREA [Grid pattern]

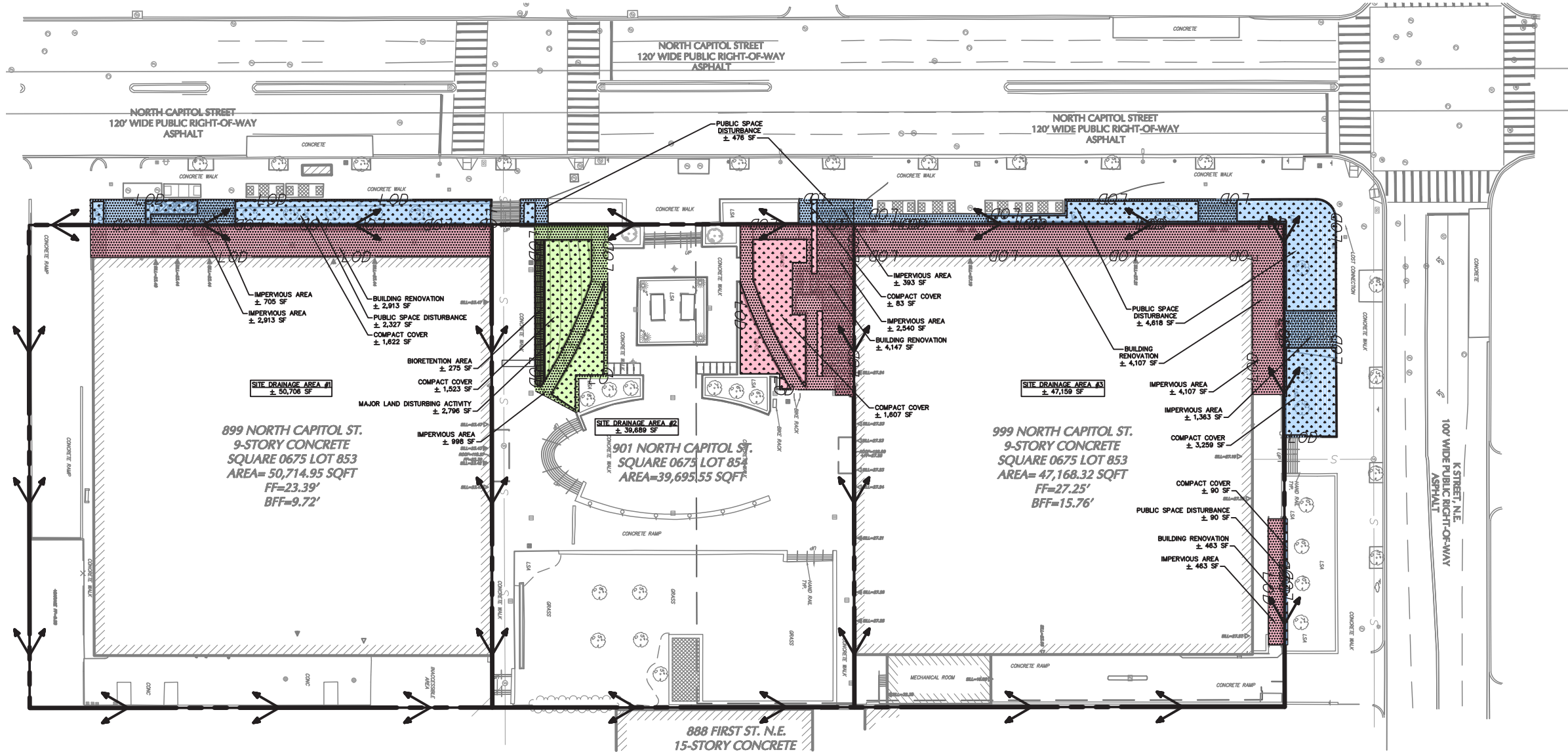
Pre-Construction Land Cover	
Major Land Disturbance	Area (sf)
Compacted Cover	2,402
BMP - Bioretention	-
Impervious Cover	394
Total	2,796
Building Renovation	Area (sf)
Compacted Cover	2,125
Impervious Cover	6,592
Total	8,717
Public Right-of-Way	Area (sf)
Compacted Cover	5,891
Impervious Cover	1,625
Total	7,516



899 and 999 North Capitol Street, NE
PHASE 1
 August 24th, 2021



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	UNION SQUARE WASHINGTON DISTRICT OF COLUMBIA	PRE-CONSTRUCTION LAND COVER MAP	270098601 Date: 12 AUG 2021 Drawn By: AAO Checked By: JPR	CG102 Sheet of



POST-CONSTRUCTION LAND COVER NOTES:

1. SEE CS002 FOR ADDITIONAL NOTES.
2. ALL GRADING, DRAINAGE, AND UTILITY INSTALLATION AND/OR CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS OR LOCAL REQUIREMENTS. SHOULD A DIFFERENCE IN REQUIREMENTS OCCUR, THE STRICTER OF THE TWO REGULATIONS WILL APPLY.
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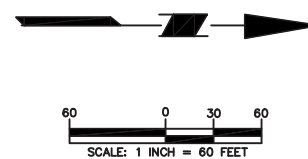
PRE-CONSTRUCTION LAND COVER LEGEND

- LIMITS OF DISTURBANCE — LOD —
- MINOR LIMITS OF DISTURBANCE — LOD —
- DRAINAGE AREA DIVIDE —
- BUILDING RENOVATION
- MAJOR LAND DISTURBING ACTIVITY
- PUBLIC SPACE DISTURBANCE
- COMPACT COVER
- IMPERVIOUS AREA
- BMP - BIORETENTION AREA

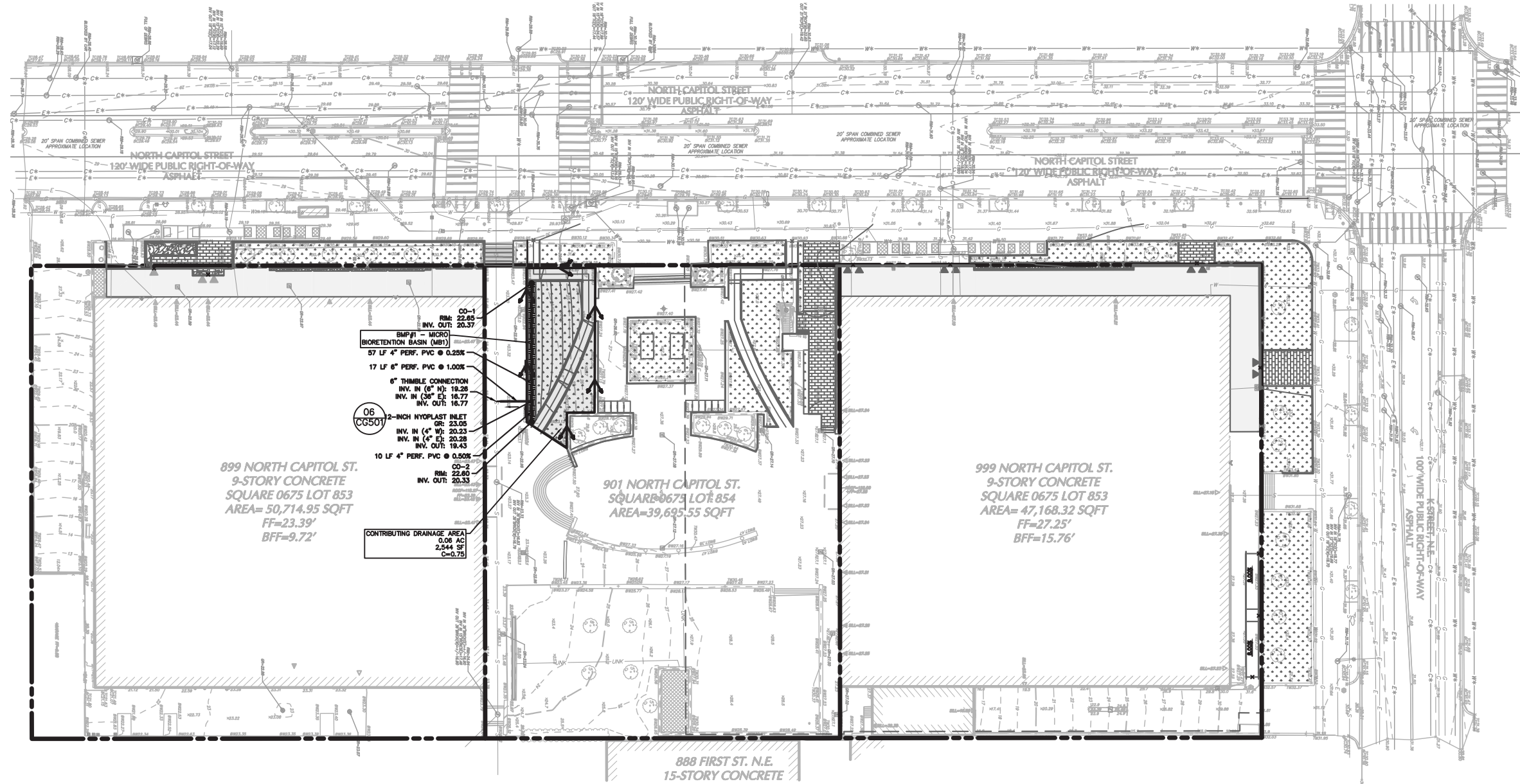
Post-Construction Land Cover	
Major Land Disturbance	Area (sf)
Compacted Cover	1,522
BMP - Bioretention	279
Impervious Cover	998
Total	2,799
Building Renovation	Area (sf)
Compacted Cover	1,607
Impervious Cover	7,110
Total	8,717
Public Right-of-Way	Area (sf)
Compacted Cover	5,053
Impervious Cover	2,461
Total	7,514



899 and 999 North Capitol Street, NE
 PHASE 1
 August 24th, 2021



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	UNION SQUARE	POST-CONSTRUCTION LAND COVER MAP	270098601	CG103
	WASHINGTON DISTRICT OF COLUMBIA		Date	Sheet of
			12 AUG 2021	
			Drawn By	
			AAO	
			Checked By	
			JPR	



STORMWATER MANAGEMENT PLAN NOTES:

- SEE CS002 FOR ADDITIONAL NOTES.
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- ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HS-20 HEAVY DUTY TRAFFIC LOADING STANDARDS AND BE INSTALLED ACCORDINGLY.
- SITE GRADING SHALL NOT PROCEED UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
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- ALL GRADING IS TO PROMOTE POSITIVE DRAINAGE AWAY FROM THE BUILDING.
- CURB ELEVATIONS INDICATED "BC" ARE BOTTOM OF CURB ELEVATIONS, CURB ELEVATIONS INDICATED AS "TC" ARE TOP OF CURB ELEVATIONS.
- EXISTING FOUNDATION ELEMENTS TO REMAIN ARE TO BE PROTECTED THROUGHOUT DEMOLITION AND CONSTRUCTION.
- RUBBER GASKETS ARE REQUIRED ON PIPE FITTINGS WITHIN THE EASTERMOST STORM SEWER CONVEYANCE SYSTEM DUE TO INCREASED HYDRAULIC GRADE LINES IN THIS AREA.
- REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR LOCATIONS OF FOUNDATION WALL DRAIN PIPES.
- CONTRACTOR TO FIELD-VERIFY STRUCTURE COORDINATES PROVIDED PRIOR TO CONSTRUCTION OF THE STORMWATER SYSTEM.

STORMWATER MANAGEMENT LEGEND



STORMWATER MANAGEMENT NARRATIVE

THIS SITE WILL UNDERGO MAJOR LAND DISTURBING ACTIVITY (MLDA) AND BUILDING RENOVATIONS. THE BUILDING RENOVATIONS, WHICH INCLUDE EXPANDING THE 899 AND 999 BUILDINGS TO THE PROPERTY LINE ON TOP OF THE UNDERGROUND GARAGES, WILL COST LESS THAN 50% OF THE ASSESSED VALUE OF THE BUILDINGS AND WILL NOT BE SUBJECT TO STORMWATER MANAGEMENT REQUIREMENTS.

BASED ON DOEE RETENTION REQUIREMENTS, THE MAJOR LAND DISTURBING ACTIVITY AREA IS SUBJECT TO THE RETENTION OF A 1.2-INCH STORM EVENT. THE STORMWATER RETENTION VOLUME (SWRV) REQUIRED FOR THIS SITE IS 159 CF.

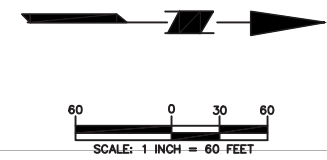
A BIORETENTION FACILITY BEST MANAGEMENT PRACTICE (BMP) WILL BE CONSTRUCTED TO RETAIN STORMWATER FROM THE PROPOSED ADA RAMP.

BIORETENTION CONSTRUCTION AND MAINTENANCE CHECKLIST FOUND IN THE DOEE STORMWATER MANAGEMENT GUIDEBOOK, APPENDICES L (FIGURE L.6) AND M (FIGURE M.5) SHALL BE FOLLOWED THROUGHOUT THE CONSTRUCTION AND MAINTENANCE OF THE BIORETENTION FACILITIES. THESE CHECKLISTS CAN BE FOUND ON SHEET CH502.

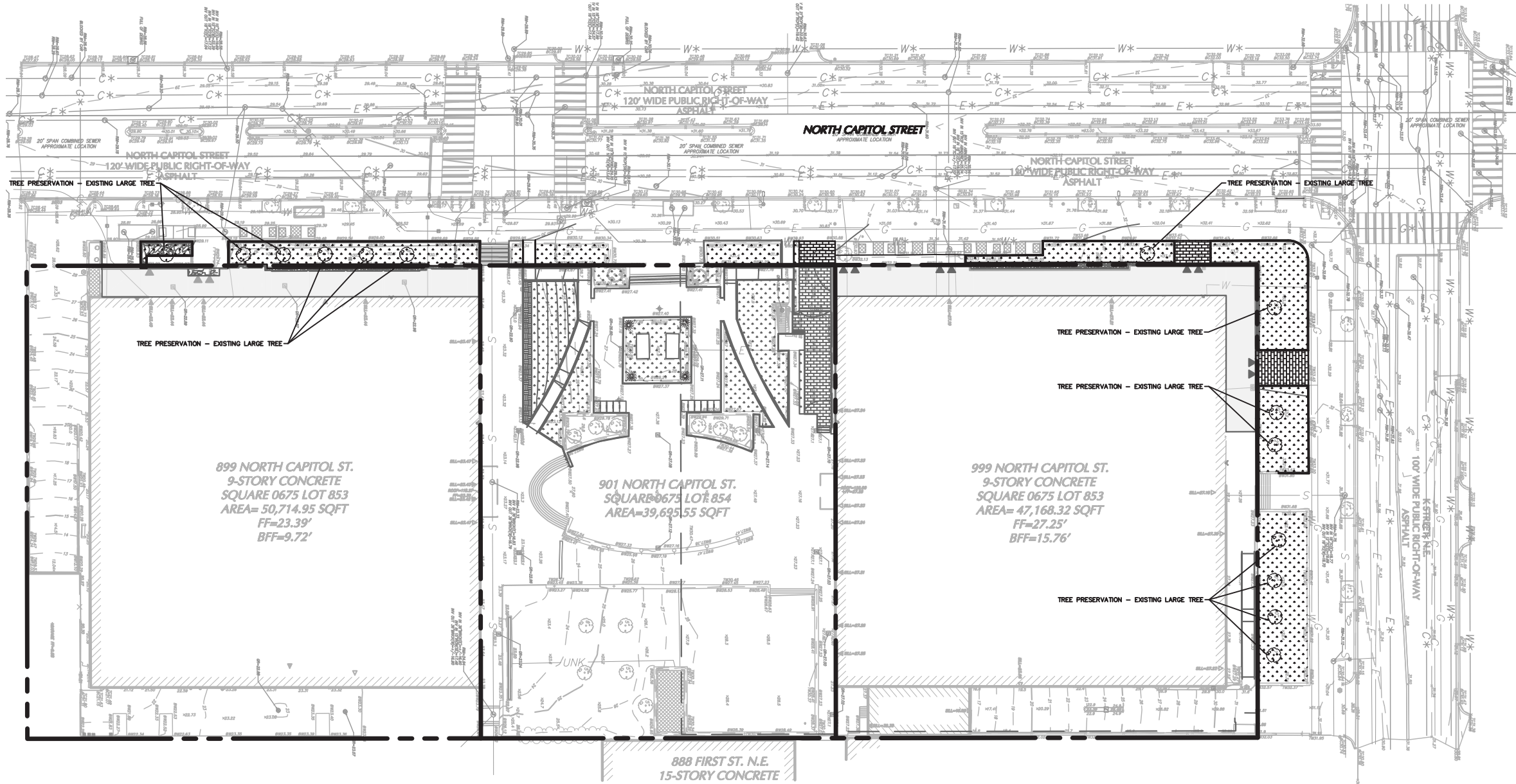
THE BIORETENTION FACILITY WILL PROVIDE 191 CUBIC FEET OF RETENTION VOLUME, EXCEEDING THE RETENTION VOLUME OF 159 CUBIC FEET. AN OVERFLOW RISER WILL BE INSTALLED AND A 6\"/>



899 and 999 North Capitol Street, NE
 PHASE 1
 August 24th, 2021



LANGAN Langan Engineering and Environmental Services, Inc. 1300 Wilson Boulevard, Suite 450 Arlington, VA 22209 T: 571.366.6800 F: 571.366.6801 www.langan.com	Project	Drawing Title	Project No.	Drawing No.
	UNION SQUARE WASHINGTON DISTRICT OF COLUMBIA	STORMWATER MANAGEMENT PLAN	270098601 Date 12 AUG 2021 Drawn By AAO Checked By JPR	CG104 Sheet of



PUBLIC SPACE STORMWATER MANAGEMENT NARRATIVE

STORMWATER MANAGEMENT WITHIN THE PUBLIC SPACE WILL BE ADDRESSED TO THE MAXIMUM EXTENT PRACTICABLE USING STREET TREE PLANTING AND THE ADDITION OF LANDSCAPE AREA WITHIN PUBLIC SPACE.

THIS PROJECT WILL DISTURB 7,514 SF OF LAND WITHIN THE PUBLIC SPACE. 5,053 SF WILL BE COMPACTED COVER AND 2,461 SF WILL BE IMPERVIOUS COVER. THE PUBLIC SPACE WORK WILL CONSIST OF REPLACEMENT OF EXISTING SIDEWALK, INSTALLATION OF STREET LIGHTS, PLANTING OF NEW STREET TREES AND THE ADDITION OF A LANDSCAPE PLAN.

PUBLIC SPACE STORMWATER MANAGEMENT SUMMARY

PUBLIC RIGHT OF WAY LIMITS OF DISTURBANCE	= 7,514 SF
IMPERVIOUS AREA	= 2,461 SF
COMPACTED AREA	= 5,053 SF
SWRv	= 360 CF
TREE PRESERVATION	
14 LARGE TREES x 20 CF/TREE	= 280 CF
SWRv PROVIDED	= 280 CF
	(78% OF REQUIREMENT)

STORMWATER MANAGEMENT PLAN NOTES:

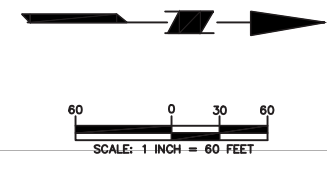
- ALL WORK PERTAINING TO STORMWATER MANAGEMENT IN THE PUBLIC RIGHT OF WAY MUST CONFORM TO THE 2014 DDOT GREEN INFRASTRUCTURE STANDARDS.

STORMWATER MANAGEMENT LEGEND

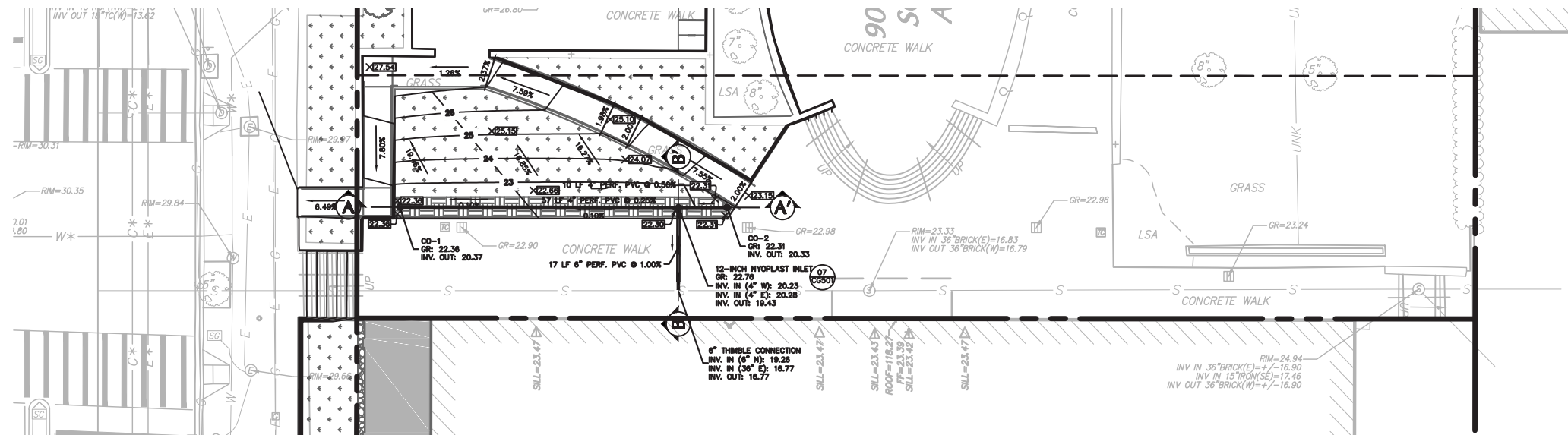
EXISTING PUBLIC SPACE TREE	
PROPOSED BRICK WALKWAY	
PROPOSED LANDSCAPE AREA	



899 and 999 North Capitol Street, NE
 PHASE 1
 August 24th, 2021

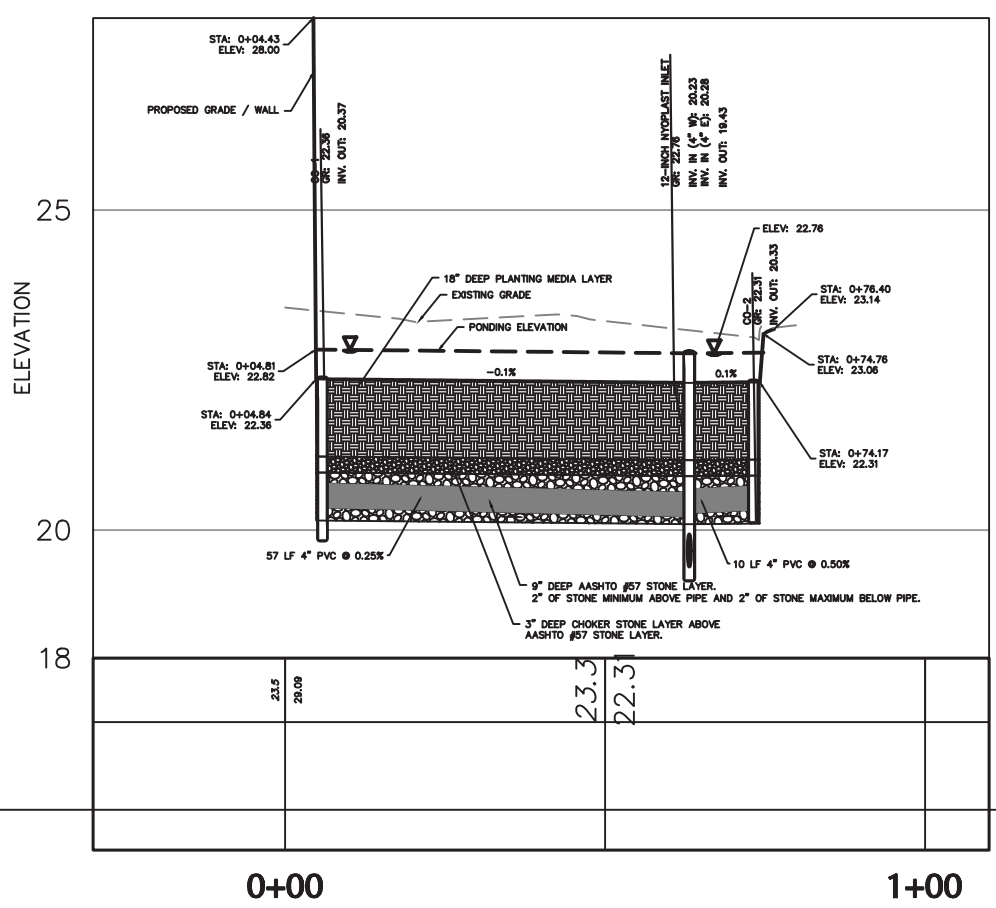


LANGAN Langan Engineering and Environmental Services, Inc. 1300 Wilson Boulevard, Suite 450 Arlington, VA 22209 T: 571.366.6800 F: 571.366.6801 www.langan.com	Project	Drawing Title	Project No.	Drawing No.
	UNION SQUARE	PUBLIC SPACE STORMWATER MANAGEMENT PLAN	270098601	CG105
	WASHINGTON DISTRICT OF COLUMBIA		Date	
			12 AUG 2021	
			Drawn By	
			AAO	
			Checked By	
			JPR	Sheet of

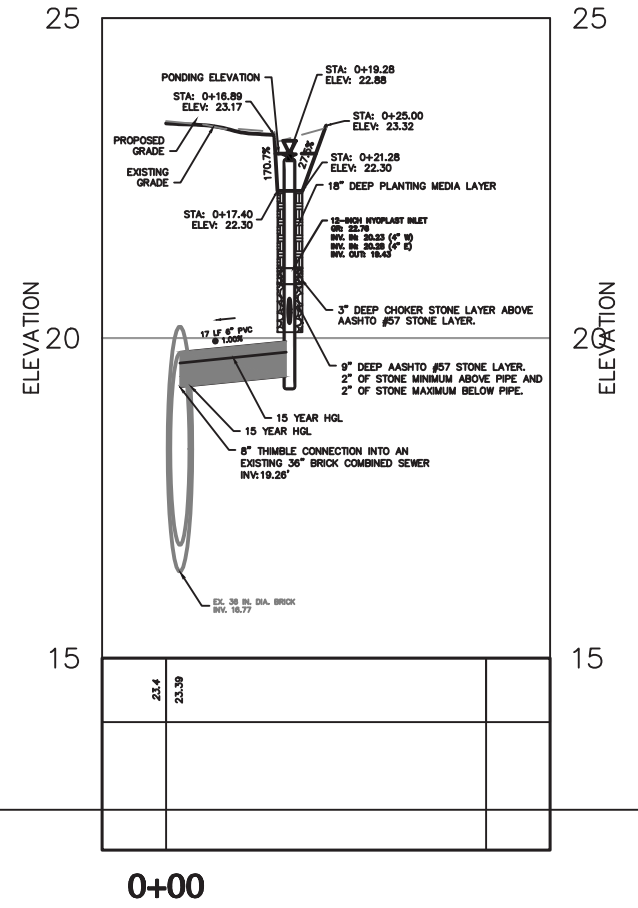


01 PLAN VIEW
CG301

SCALE: 1" = 30'



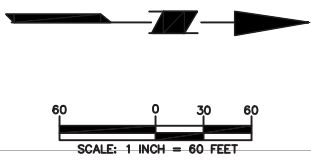
02 SECTION A-A' - UNDERDRAIN
CG301 SCALE: H: 1" = 30'; V: 1" = 4'



03 SECTION B-B' - OUTFALL PIPE
CG301 SCALE: H: 1" = 30'; V: 1" = 4'



899 and 999 North Capitol Street, NE
PHASE 1
August 24th, 2021



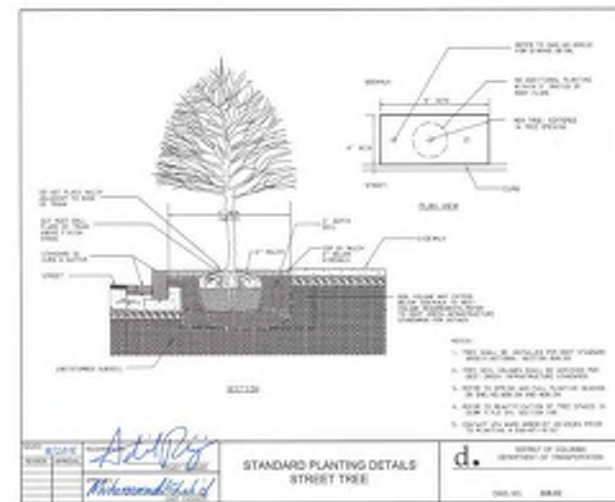
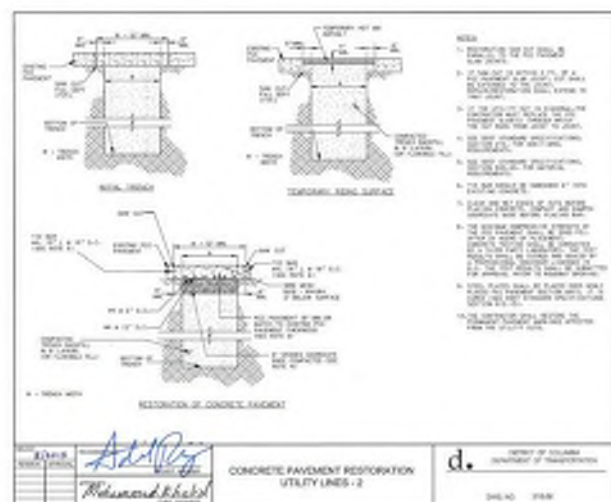
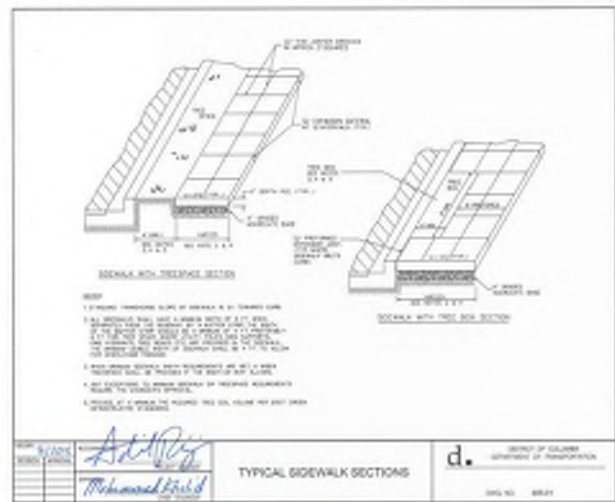
LANGAN
Langan Engineering and
Environmental Services, Inc.
1300 Wilson Boulevard, Suite 450
Arlington, VA 22209
T: 571.366.6800 F: 571.366.6801 www.langan.com

Project
UNION SQUARE
WASHINGTON DISTRICT OF COLUMBIA

Drawing Title
**BIORETENTION
SECTIONS &
STORM PROFILE**

Project No.
270098601
Date
12 AUG 2021
Drawn By
AAO
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CG301
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<p>LANGAN Langan Engineering and Environmental Services, Inc. 1300 Wilson Boulevard, Suite 450 Arlington, VA 22209 T: 571.366.6800 F: 571.366.6801 www.langan.com</p>	Project	Drawing Title	Project No.	Drawing No.
	UNION SQUARE	SITE DETAILS	270098601	CS501
	WASHINGTON DISTRICT OF COLUMBIA		Date	
			12 AUG 2021	
			Drawn By	Sheet
			AAO	of
			Checked By	
			JPR	

Figure 1.1 Construction Inspection Report

L-1

Figure 1.1 (continued)

L-1

Stormwater Management Plan Compliance Data

Site Address: 901 North Capitol Street NE | Plan number: 7122
 Stormwater Management Plan? Yes | Green Area Ratio? No - GAR does not apply to this property
 Soil Erosion and Sediment Control? Yes | Floodplain Review? No
 Type of Activity: More than one type of activity | AWD? Non-AWDZ
 Is the entire site in the CSS? Yes

	Total Area (sf)	Site Area	PROW
Natural	0	0	0
Compacted	6,576	1,523	5,053
Impervious	3,459	998	2,461
BMP	275	275	0
Total	10,310	2,796	7,514

Requirements Summary (total is the sum of PROW and Parcel)

	PROW (ft³)	Parcel (ft³)	Total (ft³)	Total (Gallons)
SWRv	360	159	519	3,883
WQTV	0	0	0	0
On-site retention achieved	0	191	191	1,427
On-site treatment achieved	0	127	127	951
% of SWRv met on-site	0%	120%	36.75%	36.75%
SRC eligibility				238
Offv				0

Site Drainage Area Compliance Data

Site Drainage Area ID	Public Right of Way	Total area (square feet)	Natural (square feet)	Compacted (square feet)	Impervious (square feet)	BMP (square feet)	Vehicular access area (square feet)	SWRv (cubic feet)	WQTV (cubic feet)	Volume retained (cubic feet)	Volume treated (cubic feet)	2-year storm adjusted Curve Number	11-year storm adjusted Curve Number	100-year storm adjusted Curve Number	SDA Minimum Compliance
7122-1	<input type="checkbox"/>	2,796		1,523	998	275		159		191	127	59	70	73	N/A

Site BMP Compliance Data

BMP ID number	Type	Total CDA (square feet)	Natural (square feet)	Compacted (square feet)	Impervious (square feet)	BMP (square feet)	Total Post-project vehicular access area (square feet)	Volume received from upstream BMPs (cubic feet)	Max volume received by BMP (cubic feet)	Storage volume (cubic feet)	Retention calculation	Volume retained (cubic feet)	Volume treated (cubic feet)	Downstream BMP ID Number
7122-1-1	Traditional bioretention - Standard	3,742		1,001	2,470	271			404	318	60% of storage volume	191	127	

Site Drainage Area ID	Public Right of Way	Total area (square feet)	Natural (square feet)	Compacted (square feet)	Impervious (square feet)	BMP (square feet)	Vehicular access area (square feet)	SWRv (cubic feet)	WQTV (cubic feet)	Volume retained (cubic feet)	Volume treated (cubic feet)
7122-2	<input checked="" type="checkbox"/>	7,514		5,053	2,461			360			

Compliance data last updated: 07-28-2021 04:27 PM
 Plan 7122 Page 3 of 3

BIORETENTION STORAGE CALCULATIONS

SCALE: NTS

Storm Sew

Page 1

Line No.	Invert Up (ft)	Invert Dn (ft)	Geoc. Ft (ft)	Dmg. Area (sq ft)	Flow Rate (cfs)	Runoff Coeff (C)	Line Length (ft)	Line Slope (%)	HGL Up (ft)	HGL Dn (ft)	Line Size (in)
1	19.43	19.25	0.55	0.09	0.45	0.75	17,000	1.02	10.78	10.61	6

Project File: storm.sdm | Number of Invs: 1 | Date: 8/2/2021
 NOTES: ** Critical depth

15-YEAR CONVEYANCE CALCULATIONS

SCALE: NTS

Variable	Value	Units	Notes on use
Type		Select	From drop down list, select type of bioretention.
SA _{top}		ft²	
SA _{bottom}		ft²	
SA _{average}		ft²	Typical average
d _{media}		ft	
n _{media}		unitless	Typically 0.25
d _{gravel}		ft	
d _{stone}		ft	Depth of stone below underdrain (sump); only for Enhanced with Underdrain
n _{gravel}		unitless	Typically 0.40
d _{ending}		ft	Maximum depth is 1.5 ft; minimum depth is 0.25 ft.
Sv		ft³	
K _{sat}		ft/day	Must exceed 0.1 ft/day
t _d		days	Must be within 3 days
n _s		unitless	Assumed to be 0.40
d _{sump}		ft	Maximum depth of stone below underdrain (sump) allowed.
Sv _{infiltrate}		ft³	
Check for Sv _{infiltrate}		N/A	Sv _{infiltrate} must be greater than or equal to Sv to ensure infiltration within 72 hours.
Rv		ft³	calculated based on type selected.
Rv		gallons	

BIORETENTION STORAGE CALCULATIONS

SCALE: NTS

BIORETENTION CONSTRUCTION INSPECTION REPORT

CG502

SCALE: NTS

Figure M.1 Maintenance Inspection Report

M-1

Figure M.1 (continued)

M-1

BIORETENTION MAINTENANCE INSPECTION REPORT

CG502

SCALE: NTS



899 and 999 North Capitol Street, NE
 PHASE 1
 August 24th, 2021

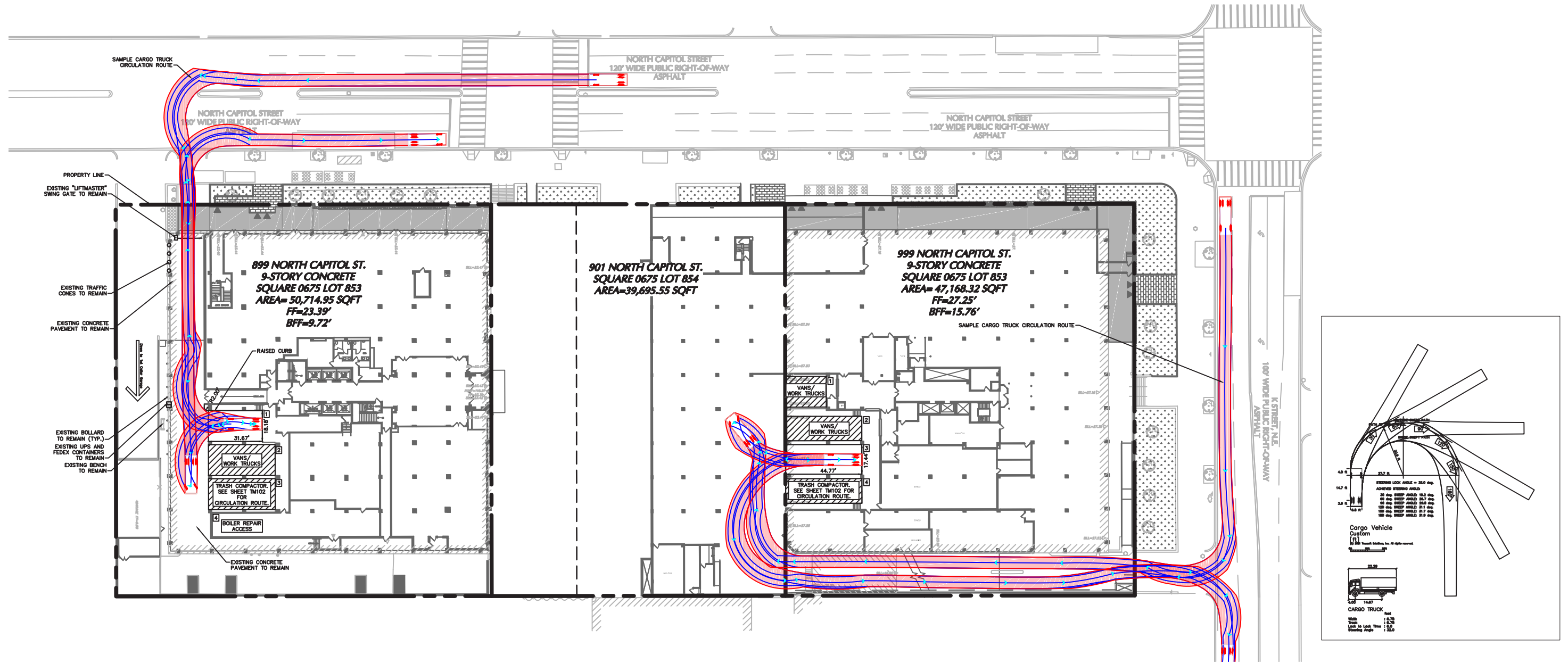
LANGAN
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 Arlington, VA 22209
 T: 571.366.6800 F: 571.366.6801 www.langan.com

Project
UNION SQUARE
 WASHINGTON DISTRICT OF COLUMBIA

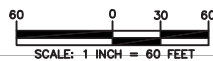
Drawing Title
STORMWATER MANAGEMENT CALCULATIONS

Project No.
 270098601
 Date
 12 AUG 2021
 Drawn By
 AAO
 Checked By
 JPR

Drawing No.
CG502
 Sheet of



899 and 999 North Capitol Street, NE
PHASE 1
 August 24th, 2021



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Project

UNION SQUARE

WASHINGTON DISTRICT OF COLUMBIA

Drawing Title

**TRUCK TURNING
 DIAGRAM
 (CARGO TRUCK)**

Project No.

270098601

Date

12 AUG 2021

Drawn By

AAO

Checked By

JPR

Drawing No.

TM101

Sheet of